

What is claimed is:

1. A plasma-processing method comprising the steps of:  
mounting an object to be processed on a mounting unit disposed within  
a process chamber;

5       generating a plasma by feeding a plasma-generating gas containing  
sulfur hexafluoride and helium into the process chamber and by causing a  
plasma discharge; and  
etching the object with the plasma.

10       2. The plasma-processing method of claim 1, wherein the step of  
generating the plasma includes the sub-steps of:  
applying a high-frequency voltage to the mounting unit; and  
supplying the plasma-generating gas from an ejection hole opposite to  
the mounting unit.

15       3. The plasma-processing method of claim 1,  
wherein the object is a wafer having first and second sides, and the  
second side including a damaged-layer damaged by mechanical polishing or  
grinding, and

20       wherein the step of etching the object includes the sub-step of removing  
the damaged-layer.

25       4. The plasma-processing method of claim 3,  
wherein the wafer includes a protective sheet affixed to the first side  
thereof, and

wherein the step of etching the object further includes the sub-step of  
etching the wafer with the protective sheet mounted to the mounting unit.

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5. The plasma-processing method of claim 4, wherein the step of etching the wafer further includes the sub-step of etching the wafer while cooling the mounting unit.

2020-05-19 10:00:00